EXPLANATION OF SIGNIFICANT DIFFERENCES
FOR TEMPORARY STORAGE OF SEDIMENTS IN CELL #1,
EPA SAWYER STREET FACILITY
NEW BEDFORD HARBOR SUPERFUND SITE/OPERABLE UNIT #1
NEW BEDFORD, MASSACHUSETTS

Site Name: New Bedford Harbor Superfund Site

Location: New Bedford, Massachusetts

Lead Agency: U.S. Environmental Protection Agency

Support Agency: Massachusetts Department of Environmental Protection

Under Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), and promulgated in 40 C.F.R. Sections 300.435(c)(2)(i) and 300.825(a)(2), if the United States Environmental Protection Agency ("EPA") determines that the remedial action at the Site differs significantly in scope, performance or cost from the Record of Decision ("ROD"), EPA shall publish an explanation of significant differences ("ESD") between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made.

This is the third ESD for Operable Unit 1, Upper and Lower Harbor ROD, September 25, 1998 ("OU 1 ROD") and contains a brief history of the New Bedford Harbor Superfund Site ("Site"), a description of the remedy selected in the ROD, changes to the ROD through the first ESD, dated September 27, 2001 and the second ESD, dated August 15, 2002 and a description of and rationale for this ESD's change to the ROD.

EPA solicited a fourteen (14) day public comment period on the draft ESD from September 1 to September 15, 2009 and then extended the period until September 30, 2009. In particular, EPA solicited public comment concerning a CERCLA waiver of a requirement under the Massachusetts Hazardous Waste Regulations that an existing surface impoundment EPA has been using for temporary storage of contaminated sediments at its facility at Sawyer Street in New Bedford has a double liner rather than the single liner that presently exits. The basis for the waiver is that the single liner, in combination with site conditions and facility monitoring, is equally protective to a double liner for the temporary storage facility. In addition, EPA solicited comments concerning the Region's finding under the Toxics Substances Control Act ("TSCA"), risk-based regulations that the use of the surface impoundment for polychlorinated biphenyls ("PCB")-contaminated sediments does not pose a risk to health and the environment and is consistent with a previous risk-based finding concerning the facility made in 2001 in the first OU 1 ESD.

This final ESD and other supporting documents, including comments submitted during the public comment period and EPA's response to those comments, can be found in the Administrative Record located at EPA's Region I Records Center, located at Five Post Office

Square, Suite 100, Boston, Massachusetts 02109-3912 with hours from Monday thru Friday 9 a.m. - 5 p.m. and at the New Bedford Free Public Library, 613 Pleasant Street, New Bedford, Massachusetts 02740.

I. Site History

The Site is located in Bristol County, Massachusetts, and extends from the shallow northern reaches of the Acushnet River estuary south through the commercial harbor of New Bedford and into 17,000 adjacent areas of Buzzards Bay. Industrial and urban development surrounding the harbor has resulted in sediments becoming contaminated with high concentrations of many pollutants, notably PCBs and heavy metals, with contaminant gradients decreasing from north to south. The Site is divided into three areas, the upper, lower and outer harbors - consistent with geographical features of the area and gradients of contamination. The Site is also defined by three state-sanctioned fishing closure areas extending approximately 6.8 miles north to south and encompassing approximately 18,000 acres in total.

There are three operable units ("OUs") at this site. They include: OU 1 - the upper and lower harbor; OU 2 – the "hot spot" operable unit, consisting of some of the Site's most highly PCB-contaminated sediments (concentrations greater than 4,000 parts per million ("ppm")) located adjacent to the Aerovox facility; and OU 3 - the outer harbor.

The upper harbor comprises approximately 187 acres. The boundary between the upper and lower harbor is the Coggeshall Street bridge where the width of the bridge is approximately 100 feet. The lower harbor comprises approximately 750 acres. The boundary between the lower and outer harbor is the 150 foot wide opening of the New Bedford hurricane barrier, constructed in the mid-1960s. Sediment PCB levels in the outer harbor are generally low, with only localized areas of PCBs in the 50-100 ppm range near the Cornell-Dubilier plant and the City's sewerage treatment plant's outfall pipes. The outer harbor is comprised of approximately 17,000 acres with its southern extent (and the Site's boundary) formed by an imaginary line drawn from Rock Point (the southern tip of West Island in Fairhaven) southwesterly to Negro Ledge and then southwesterly to Mishaum Point in Dartmouth.

This Site's CERCLIS identification number is MAD980731335. EPA is the lead agency at the site.

II. Summary of Remedy

Prior to the issuance of any RODs for the Site in 1988-89, as part of EPA's pilot study of dredging and disposal techniques, a six acre confined disposal facility ("Pilot Study CDF") was constructed along the shoreline immediately north of Sawyer Street in New Bedford. The Pilot Study CDF consisted of a primary and a secondary cell separated by a sheet pile wall, and was partially filled with PCB-contaminated sediments dredged from the cove just north of the Pilot Study CDF. Cleaner, deeper sediments from this cove were used to cap the contaminated sediments (See Figure 1).

This area was further modified under the 1990 OU 2 Hot Spot ROD, which called for the

dredging of approximately 10,000 cubic yards of the most highly contaminated sediments (the "hot spot" sediments) from the Acushnet River with PCB concentrations greater than 4,000 ppm and the treatment of the dredged sediments using on-site incineration. Water treatment operations as part of this remedy were conducted at a water treatment facility constructed on the western end of the Pilot Study CDF[1].

On April 27, 1995 EPA issued an Explanation of Significant Differences for the hot spot operable unit (OU 2 ESD #1) which modified the remedy so that the solidified ash from the incineration would permanently be disposed of in cell #1 of the water treatment facility. Cell #1 was to receive the solidified incinerator ash, and this cell was to be covered with a landfill-type cap. The ESD documented that cell #1 was constructed and could be managed in a manner that complied with federal and state hazardous waste disposal standards. As a first step in the process, hot spot sediments were dredged and temporarily stored in the water treatment facility cells.

On October 30, 1995 EPA issued a second OU 2 ESD (OU 2 ESD #2), which modified the hot spot remedy to change cell #1 from a disposal facility for incinerator ash to an interim storage facility for the untreated hot spot sediments while other treatment technologies were evaluated. This was done since EPA had initiated studies to determine other alternatives to incineration for the permanent treatment and/or disposal of the hot spot sediments. The OU 2 ESD #2 documented that the cell met federal and state standards for use for the temporary storage of contaminated sediments. Specifically: 1) the Massachusetts hazardous waste surface impoundment regulations under 310 CMR 30.610, and 2) the federal Toxic Substance Control Act (TSCA) PCB storage regulations under 40 CFR 761.65.[2]

Pilot studies of solidification and chemical destruction technologies were completed in the fall of 1996, and a feasibility study of alternative remedial approaches was issued in December 1997. EPA issued an Amended Record of Decision in April 1999 which removed the incineration component of the remedy and replaced it with off-site landfilling as the final component for the hot spot remediation. Removal of the hot spot sediment that was stored in cell #1 and its transportation to an offsite TSCA permitted landfill started in December 1999. The cell was emptied of the hot spot sediments in May 2000. The excavation of the hot spot sediments damaged the double liner that had been installed within the cell. Once the hot spot sediment was removed, a single sixty (60) mil or 0.06 inch thick, high density polypropylene ("HDPE") liner was reinstalled in the cell.

Meanwhile, remediation of the upper and lower harbor operable unit (OU 1) was initiated with the issuance of the 1998 OU 1 ROD. This ROD called for approximately 450,000 cubic yards of PCB laden sediment to be dredged from the harbor bottom and surrounding wetlands, and to be disposed in perpetuity in four shoreline confined disposal facilities (CDFs A, B, C[3] and D). Since that time EPA gathered additional site information and refined the cleanup approach

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[1] The eastern area of the Pilot Study CDF has been used as a debris disposal area ("DDA").

[2] In making the determination several specific requirements of the hazardous waste surface impoundment and TSCA PCB storage regulations were waived under Sections 121(d)(4)(A) and (B) of CERCLA, 42 U.S.C. §§ 9621(d)(4)(A) and (B), because the design and operation of the cell as a temporary storage facility was found to be protective and was only an interim measure. *See* OU 2 ESD #2 and further discussion in Part III of this ESD.

[3] The footprint of CDF C would incorporate much of the area of the Pilot Study CDF.

for the upper and lower harbor area. A 2001 ESD ("OU 1 ESD #1") addressed five of these refinements: (1) additional intertidal cleanup areas; (2) mechanical dewatering; (3) use of the pilot study CDF as an interim TSCA facility (which is discussed in more detail below); (4) change in CDF D wall design; and (5) use of rail at CDF D. A second 2002 ESD ("OU 1 ESD #2) further modified the upper and lower harbor remedy to include offsite disposal for the dredged sediments slated for CDF D instead of constructing CDF D and disposing PCB contaminated sediments in it.

The 2001 OU 1 ESD #1 added the use of the Pilot Study CDF as an interim TSCA facility for PCB-contaminated sediment from the upper and lower harbor operable unit. The ESD specifically discussed EPA's use of the eastern end of the CDF (the debris disposal area, or "DDA") for PCB-contaminated sediments and debris from the upper and lower harbor remediation, but did not specifically discuss the use of cell #1 in the western end of the Pilot Study CDF. The ESD identified that the upper and lower harbor sediments to be disposed in the Pilot Study CDF did not meet federal or state standards to be classified as hazardous waste and were regulated solely under TSCA.

In order for the use of the Pilot Study CDF as an interim TSCA facility to be protective to human health and the environment, the OU 1 ESD #1 documented that groundwater and air monitoring had been and would continue to be performed in and around the facility and that monitoring data up to that date indicated that PCBs were not migrating from the facility. In addition, a clay layer is present under the Pilot Study CDF that acts as a naturally impermeable barrier to the movement of contaminants from the area.

The OU 1 ESD #1 included a finding under Section 761.61(c) of the TSCA regulations, 40 C.F.R. § 761.61(c), made by the Regional Administrator, EPA Region 1, that the facility did not pose an unreasonable risk to health or the environment. This finding was based on a determination, after reviewing the information contained in the Administrative Record, that the facility does not pose a risk as long as the following conditions are maintained: (1) groundwater and air monitoring of the area is continued as long as the PCB contaminated sediment remains in place; (2) subsurface conditions remain intact; (3) surface PCB levels in the DDA remain low or, alternatively, a clean soil cover (approximately six inches thick) is placed so that it does not pose an unreasonable risk to health or the environment; and (4) a final resolution of the facility is made in a later decision document.

III. This Explanation of Significant Differences

This ESD documents EPA's use of cell #1 located on top of the western side of the Pilot Study CDF, for temporary storage of PCB-contaminated sediments from the OU 1 remedy since the cell was emptied of the hot spot operable unit sediments in 2000. This ESD restates the EPA Region 1's 2001 finding under TSCA, that the temporary storage of PCB-contaminated sediment within cell #1, on top of the Pilot Study CDF, does not pose an unreasonable risk to health or the environment. The ESD also modifies the previous OU 2 ESD #1 finding that cell #1 meets applicable standards for the temporary disposal of hazardous waste, as well as PCBs. However, in making this finding, it is necessary for EPA to invoke a waiver under Sections 121(d)(4)(A) and (B) of CERCLA, 42 U.S.C. §§ 9621(d)(4)(A) and (B), of the Massachusetts hazardous waste surface impoundment regulation's requirement that the cell have a double liner. EPA has determined that the single liner present in the cell, in combination with the underlying clay layer

under the Pilot Study CDF and the extensive monitoring plan for the facility is equally protective as a double liner and is suitable for a temporary hazardous waste surface impoundment facility.

Use of Cell #1 for PCB-Contaminated Sediments

As discussed in the previous section, the OU 1 ESD #1 included a finding under 40 CFR 761.61(c) of the TSCA regulations that the entire Pilot Study CDF was suitable as a temporary disposal facility for PCB-contaminated sediments. Furthermore, the OU 2 ESD #1 found that the cell itself meets TSCA standards for a temporary storage facility under 40 CFR 761.65, except for several standards that were waived under the protectiveness, interim measure, and equivalent standard waivers under Sections 121(d)(4)(A), (B), and (D) of CERCLA, 42 U.S.C. §§ 9621(d)(4)(A), (B), and (D)[4].

Although not specifically addressed under the OU 1 ESD #1, since the summer of 2000, cell #1 has been used to temporarily store PCB-contaminated sediments from upper and lower harbor remedial actions. Specifically, the following OU 1 PCB-contaminated sediments have been placed into cell #1:

- 2000 - dredge material from the upper harbor (on the east side of the Acushnet River across from Manomet Street) as part of the Pre-Design Field Test

- 2002 - excavated material from the North of Wood Street (NWS) remediation

- 2002 - dredged material from the North Lobe Dredging (NLD) project as part of the Packer pier relocation

- 2005 - 2008 - sand, etc. removed from the Area C desanding facility

- From June to August 2008, EPA excavated approximately 6,900 cubic yards of PCB-contaminated shoreline sediments at the former Aerovox facility. Portland cement was added to the sediments at a ratio of 7 to 12 percent in a temporary enclosure at the Aerovox property to stabilize free liquids in the material prior to shipment to cell #1.

As part of this ESD, the Director of the Office of Site Remediation and Restoration, EPA Region1[5] finds that the use of cell #1 on top of the western end of the Pilot Study CDF to temporarily hold PCB-contaminated sediments meets the protectiveness criteria under 40 C.F.R 761.61(c) of the TSCA regulations. This finding is based on a determination, after reviewing the information contained in the Administrative Record, that the use of the Pilot Study CDF,

[4] Sections of the TSCA temporary storage regulations waived by the 2001 OU 1 ESD #1were: (1) 40 C.F.R. 761.65(a) – one year storage limit: (2) 40 C.F.R. 761.65(b)(1)(i) – roof and wall requirements for storage units; (3) 40 C.F.R. 761.65(b)(1)(ii) and (iv) – flooring and curbing requirements; (4) 40 C.F.R. 761.65(b)(1)(v) – 100-year floodwater protection; and (5) 40 C.F.R. 761.5(e)(6) – 90 day storage and 180 day closure requirements.

[5] Since the time of the 2001 OU 1 ESD #1 the authority within EPA Region 1 to make a finding under 40 CFR 761.61(c) has been delegated from the Regional Administration to the Director of the Office of Site Remediation and Restoration.

including cell # 1, for temporary storage of PCB-contaminated sediment does not pose a risk as long as the following conditions are maintained: (1) groundwater and air monitoring of the area is continued as long as the PCB contaminated sediment remains in place; (2) subsurface conditions remain intact; (3) surface PCB levels remain low or, alternatively, a clean soil cover (approximately six inches thick) is placed so that it does not pose an unreasonable risk to health or the environment; and (4) a final resolution of the facility is made in a later decision document.

Site monitoring since the 2001 OU 1 ESD #1, continues to show no migration of contaminants from the facility. The OU 2 ESD #2 describes that cell #1 was originally designed and constructed so that it could safely hold the hot spot sediments, which contained higher concentrations of PCBs (over 4,000 ppm) than the upper and lower harbor sediments (generally less than 4,000 ppm). The only change in the cell's design was the replacement of the double liner with a single liner once the hot spot sediments had been removed. Monitoring continues to show that this design change has not changed the protectiveness of the facility (See recent air and groundwater monitoring results in Tables 2, 3 and 4). PCB-contaminated sediments will be temporarily stored in cell #1 until a final decision is made as to permanent treatment or disposal.

Use of Cell #1 for Sediments Contaminated with Hazardous Waste

From June to August 2008, EPA excavated approximately 6,900 cubic yards of contaminated shoreline sediments near the former Aerovox facility that were disposed of in cell #1. Two rounds of Toxicity Characteristic Leaching Procedure ("TCLP") analytical tests were performed on the sediment deposited into the cell in August and October 2008. Results of the TCLP test showed that the material exceeds Resource Conservation and Recovery Act ("RCRA"), characteristic hazardous waste standards for toxicity due to the presence of trichloroethylene ("TCE") within a TCLP test result range of concentrations from 0.66 ppm to 23.0 ppm. The regulatory TCLP test result limit for a material to be a RCRA characteristic hazardous waste for TCE is 0.5 ppm. Results from the second round of testing showed TCE TCLP test result concentrations ranged from 0.130 ppm to 43.0 ppm (See Table 1).

As discussed in the OU 2 ESD #2, cell #1 was designed and constructed to meet federal and state standards for use for the temporary storage of hazardous waste, specifically the Massachusetts hazardous waste surface impoundment regulations under 310 CMR 30.610, As authorized under CERCLA, the ESD waived two surface impoundment regulatory requirements: (1) the requirement for a leak detection, collection and removal system, 310 CMR 30.612(3) and (2) the requirement that two feet of freeboard be maintained (freeboard refers to the distance from the top of the dredged sediments to the top of the surrounding cell wall) in order to ensure that at no time will dredged material be allowed to overtop the impoundment, 310 CMR 30.612(6). This ESD retains these two CERCLA waivers and adds a new waiver of the requirement for a hazardous waste surface impoundment to have a double liner, 310 CMR 30.612(1). This CERCLA waiver under Sections 121(d)(4)(A) and (B) of CERCLA, 42 U.S.C. §§ 9621(d)(4)(A) and (B), is based on EPA's determination that the single sixty mil (0.06 inch thick) HDPE liner present in the cell, in combination with the underlying clay layer under the Pilot Study CDF and the extensive monitoring of the facility, is equally protective as a double liner and is suitable for a temporary hazardous waste surface impoundment facility.

V. Support Agency Comments

The MassDEP has reviewed this ESD and has concurred with EPA in its issuance.

VI. Statutory Determinations

As discussed in Section III, this ESD documents that the Director of the Office of Site Remediation and Restoration, Region 1 has made a regulatory finding under the authority of TSCA 40 C.F.R. 761.61(c) that the use of cell #1 and the Pilot Study CDF for the temporary storage of PCB-contaminated sediment does not pose an unreasonable risk of injury to health or the environment.

This ESD documents EPA's decision to temporarily store contaminated sediment in a manner protective of human health and the environment while alternative disposal options are explored. EPA believes that the remedy as revised by this ESD remains protective of human health and the environment, complies with federal and state ARARs that were identified in the ROD and subsequent ESDs as applicable or relevant and appropriate to this remedial action (except for regulatory requirements that have been waived within Site decision documents), and is cost-effective. Since cell #1 is only being authorized to serve as a temporary storage facility for contaminated sediments, a final disposal alternative will be developed in a future decision document.

VII. Public Participation Activities

This ESD and supporting information are available for public review at the locations and times identified in the introduction of this document. The public comment period for this ESD ran from September 1, 2009 until September 15, 2009 and was extended to September 30, 2009. On September 24, 2009, EPA held an informal Q&A session at the Sawyer Street facility to discuss this ESD and site cleanup activities. In addition, a notice of availability and brief description of the ESD was provided to a local newspaper of general circulation, the New Bedford Standard Times.

VIII. Declaration

For the foregoing reasons, by my signature below, EPA is issuing this Explanation of Significant Differences and TSCA finding under 40 C.F.R. 761.61(c) for the New Bedford Harbor Superfund Site in New Bedford, Massachusetts.

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Date

James T. Owens, III, Director
Office of Site Remediation & Restoration
EPA - New England

TABLE 1

Summary of PCB Total Aroclor and TCLP Sampling Results for TCE at the New Bedford Harbor Superfund Site – Cell #1 Sediment 2008

Sample No.	Total PCBs[1] (ppm)[3]	Trichloroethylene[2] (ppm) TCLP
1	780	1.60
2	158	23.0
3	940	23.0
4	770	0.66
5	310	0.20
6	166	0.13
7[4]	710	0.71
7	980	0.87
8	610	0.87
9	1,930	43.0
10	780	2.70

Notes

1. Total Aroclors
2,; RCRA Total Characteristic Leaching Procedure (TCLP) regulatory limit for TCE is 0.50 ppm.
3. ppm = part per million
4. Duplicate

TABLE 2
Air Monitoring Results
Sawyer Street Cell # 1 (ng/m^3)

Air Contaminant[2]	**10/07/09**	**02/24/09**	**04/24/09**	**07/13/09**	**10/14/09**
Vinyl Chloride (VC)	ND[1]	ND	ND	ND	ND
Perchloroethene (PCE)	ND	ND	ND	ND	ND
Trichloroethene (TCE)	ND	ND	ND	ND	ND
1,2-Dichloroethene (1,2-DCE)	ND	ND	ND	ND	ND

Notes
1. ND – not detected
2. 8-hour collection period

Air Contaminant[3]	**08/21/08**	**09/24/08**	**11/10/08**	**06/16/09**	**07//13/09**	**08/13/09**	**09/17/09**	**10/14/09**	**11/09/09**	**12/16/09**
PCBs[1]	123.4 116.4[2]	42	6.2	42.61	76.48 75.53[2]	32	35	13.26	51.8	1.78

Notes
1. The Public Exposure Tracking System (PETS) site specific risk-based allowable exposure limit for this location's fence line = **202 ng/m3/day**
2. Duplicate
3. 24-hour collection period

TABLE 3

SUMMARY OF DETECTED ANALYTES[1]
JULY 8, 2009 GROUNDWATER SAMPLING
SAWYER STREET PILOT STUDY CDF
NEW BEDFORD HARBOR SUPERFUND SITE

Monitoring Well ID	Result (µ/l)[2]	
	PCB[3] Aroclor 1248(& Total)	Copper[5]
MW-1	0.02U[4]	3.6
MW-1 - Duplicate	0.023U	3.3
MW-3	0.052	2.0U
MW-4A	0.021U	2.0U
MW-5	0.051	9.0
MW-6	0.021U	2.7
MW-7A	0.02U	4.7

Notes:

1. Only detected compounds are shown in table (and not all wells showed detections of that compound). VOCs, chromium and lead were not detected above the detection limit in any wells.
2. µ/l = micrograms per liter or parts per billion
3. Massachusetts Contingency Plan (MCP), Method 1 MCP GW-3 standard for total PCBs is 10 µ/l
4. U – not detected at concentration above the laboratory reporting limit
5. No Method 1 MCP GW-3 standard for copper